

EXHIBIT C

TRENDS

SOFTWARE

Rush of Integrated Mac Software

JAZZ'S COMPETITION AS FAR-FLUNG AS FRANCE, APPLE, AND MICROSOFT

BY CHRISTINE McGEEVER
Reporter

Last year's introduction of integrated software for the IBM PC was perceived as the next big thing in microcomputer software. The fact that the two major players in the game were two software giants has contributed greatly to the attention given to integrated software.

But even the names of Lotus, as in Symphony, and Ashton-Tate, as in Framework, could not carry the products to their expected success.

Last year's crop of integrated software proved to be inconvenient for all but the most sophisticated users who are comfortable working with hundreds of commands. Sales were steady but not as numerous as had been predicted.

This year's crop has been cultivated in what developers feel is a more appropriate environment for integration: Apple Computer Inc.'s Macintosh.

In fact, the Cupertino, California, microcomputer manufacturer has been banking on the success of the Macintosh in Fortune 500 companies with the upcoming release of the much-hyped Jazz, Lotus' integrated package for business use.

While Jazz is definitely the spotlight-grabber, it is not the only one on stage. At least two less-celebrated integrated software packages — Hayden Software Co.'s Ensemble and Habi Systems' Quartet — will be out before Jazz, if Lotus adheres to its release date. Meanwhile, the authors of the most successful integrated program to date, Appleworks, are readying a program called Mouseworks, which has reportedly

been the subject of intense, competitive bidding by companies eager to bring it to market. While Symphony and Framework garnered all the attention, Appleworks ranked in the money, with total sales of

are finding competition where there once was none. Apple was widely expected to drop out of the software development business, and no one expected such a shot in the arm for stand-alone products.

It appears that Switcher will be an attractive alternative to integrated programs for specific reasons, according to developers. First, it is easy to use. The user loads programs into the utility, where they reside independently. When the user clicks the mouse on an icon, Switcher replaces the program on the screen with a new one. The

MacBullit, the French version of the graphics-based Ensemble (left); Jean-Pierre Nordman, (above left) and Claude Colin of the French company Control X, developer of the package that Hayden acquired.

178,000 units worth \$41 million in 1984, according to Infocorp of Cupertino, California.

But following closely behind is a product in development that may change the market for Macintosh software in a way that no developer of integrated software has imagined.

As if competition from the ballyhooed Jazz were not enough, an innocuous utility from Apple Computer Inc., called Switcher, runs up to four stand-alone products simultaneously and allows swift data transfer between programs.

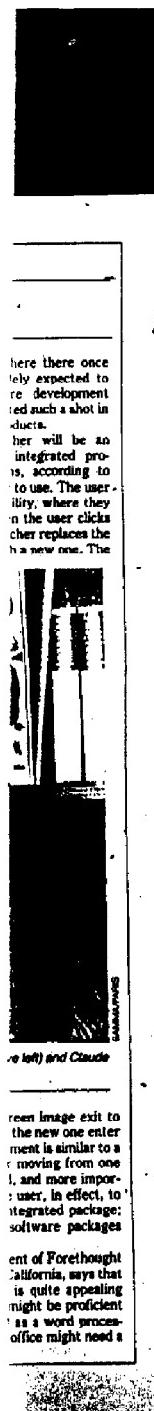
Thus, developers of integrated software

user sees the original screen image exit to the left, for instance, and the new one enter from the right. The movement is similar to a filmmaking technique for moving from one scene to another. Second, and more important, Switcher allows the user, in effect, to design his or her own integrated package; Mac owners can have software packages tailor-made.

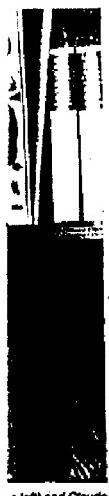
Rob Campbell, president of Forethought Inc., in Mountain View, California, says that the customizing feature is quite appealing because while one user might be proficient at using Microsoft Word as a word processor, someone else in the office might need a

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simple text editor for memos. A predetermined package, he says, might in large part be wasted on some users.

"Integrated packages may have some features you like and some you don't, so you go to other packages. Thus, you don't get your money's worth," he says.

While the Macintosh's use of pull-down menus and "dialog boxes" lessens some of the problems that plague integrated software for other computers, the Mac has problems of its own (particularly limited memory and a lot of software overhead) that exaggerate inherent limitations of integrated packages. Jazz, for instance, must squeeze enough code for a word processor, spreadsheet, database, business graphics, and communications into the Macintosh's memory along with the Finder, which provides Mac's screen display.

The result is reportedly tight limits on the size of documents and spreadsheets that can be created with Jazz. And each independent function has some limitations. The word processor is essentially similar to early versions of Macwrite, which could only handle files small enough to fit in memory, because it did not use virtual memory access to the disk drive, necessary to store longer files.

Forethought publishes stand-alone software products for the Macintosh. The company recently announced a new product that will be available in May, a database called Filemaker. Campbell says that Forethought has "shied away" from publishing integrated products for the Mac because the Macintosh is still not an ideal computer for the company.

Campbell adds that the right computer fulfills three requirements:

- It must have a consistent interface, meaning that the rules governing the functions of one program must apply to other programs so the user will remember how they work.

- It must be able to transfer data quickly from application to application.

- It must allow the user to move from one application to another quickly and efficiently.

Granted, says Campbell, the Macintosh has a consistent interface as well as the clipboard function, which allows data to travel easily from file to file. But as far as moving quickly between applications, Campbell says, "The Macintosh does a drummy job of that in"



The spreadsheet-based Quartet from Haba Systems is intended to be as functional for the Mac as Lotus' 1-2-3 was for the IBM PC.

its present configuration."

That problem, known as context switching, is remedied with Switcher, Campbell says. He adds that Forethought's Macintosh products — Factfinder, Typing Intrigue, and Filemaker — will accommodate Switcher because of their relatively compact 128K size. While Switcher may enhance the appeal of Forethought's products, Campbell emphasizes that Switcher isn't critical to sales.

Switcher author Andy Hertzfeld says that 80 percent to 90 percent of the software tested with Switcher "seemed to run OK." He says the program is still in development and could not give an exact completion date, although his goal is early May. Apple software managers were not available to confirm this date.

Hertzfeld, who is one of the original members of the Macintosh development team, is on a leave of absence from Apple and developed Switcher independently of Apple. He sold it to the company, he says, "to take advantage" of Apple's ability to get it to the market fast.

Hertzfeld has also been periodically

releasing copies of Switcher to other developers who serve as informal beta-testers. When they locate bugs, they inform Hertzfeld and recommend repairs.

Hertzfeld adds that Switcher will be sold as a utility, either at a low price or without charge, to underscore its function as such. Because it is expected that at least one powerful spreadsheet for the Macintosh will be introduced this year, Switcher would allow stand-alone products, which are more capable than the separate segments of any integrated package, to be put together by the user. Again, however, the Macintosh's unexpandable memory is a factor.

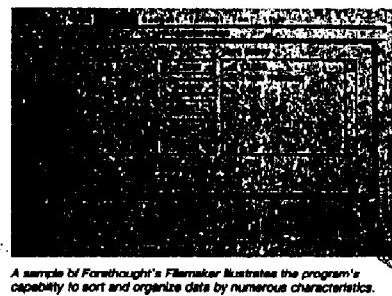
Switcher allows the amount of memory allocated to each program to be adjusted, but even on the 512K version of the machine, only two large programs can be effectively squeezed in. On the Macintosh XL (formerly the Lisa) or on the Turbo Mac, a version due out next year that reportedly will have 1 megabyte of memory, effectiveness will be enhanced.

Apple's positioning of Switcher makes it tough competition for any integrated package other than Jazz, says Tony Jordan, marketing director of Haba Systems of Los Angeles. Although Lotus has produced "the ultimate of integrated software," he says, "Haba is coming closer to the level of productivity afforded by Lotus' 1-2-3 with its new integrated product for the Macintosh, called Quartet. Scheduled for an end-of-March release, Quartet is a spreadsheet-based integrated package for the Macintosh in the tradition of Framework and Symphony."

"It doesn't compare to Jazz," Jordan says. But he adds that it comes closer to Lotus' 1-2-3 than "anything else." "It's very, very productive."

Yet, spreadsheet-based integration is last year's model. Most developers say that innovation by way of the Macintosh graphic interface, not merely a variation on a theme, is needed to sell integration.

"I would agree with the innovative concept," says Jordan, "but something new isn't necessarily better." Jordan also believes that Switcher will provide the strength necessary to maintain a healthy market for stand-alone products in the face of increasing interest in integration. But he doesn't think that Switcher and Jazz will be the only software around for the Macintosh



A sample of Forethought's Filemaker illustrates the program's capability to sort and organize data by numerous characteristics.

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in spring. "Switcher won't be a substitute" for actual integration, he says.

As if to support his point, Hayden Software Co. of Lowell, Massachusetts, has beaten everyone to the punch by shipping in early March an integrated package called Ensemble. Billed as the only integrated software for both the 128K and 312K Macintoshes, Ensemble is intended to be a "platform for Hayden; to which ancillary business products will be added later," according to marketing specialist Joe Jennings, who represents Hayden.

Hayden's Scott Marshall, director of professional products, says that the Macintosh is ideal for integrated software, regardless of the formidable competition from Lotus and Apple's own Switcher. "The Macintosh is allowing people to express themselves like no other machine before," Marshall says.

"Mac owners," he continues, "tend to be convenience-oriented people. People want convenience however they can get it, and integrated software provides that convenience. But you can't compromise. You've got to make a good, solid core of functionality. Ensemble is a very strong database, allowing you to [combine] graphic images as well as text. Beyond that, we offer

peripheral functions such as business graphics and text editing."

Hayden decided nine months ago to put software on the Macintosh, but it did not set to work developing it. Known for its success with the 5-year-old Sargon program for the Apple II, Hayden is a software acquisitions house. To get Ensemble on the market, the company went to the French company that offered the product, selling it as Machase.

Hayden made the initial contact with the French company, Contrôle X, at Comdex, an industry trade show held in Las Vegas last November. According to Marshall, Hayden "beat at least half a dozen" other software publishers interested in the product and acquired the rights to market Machase.

The fact that Ensemble runs on both the 128K and 312K Macintoshes "was a strong selling point," says Marshall, but time was a bigger factor. Hayden wanted to get the product, not as soon as possible to time with "Apple's push" into the business market," he says. Hayden also wanted to stress ease of use and saw the French company's Machase as the perfect candidate.

Contrôle X co-founder Olivier Fleurot, believes that Machase/Ensemble (the two are identical except for the translation into

English from the original French) is easy for Americans to use because it was developed for the French audience, which, Fleurot says, is less sophisticated about computers and has received the Macintosh enthusiastically. (See *InfoWorld*, March 4, 1985.)

"The French market is not as mature as the American market," says Fleurot. "The French user knows much less than the American user. A lot of professionals, lawyers, doctors, had never had a microcomputer before buying a Mac. We had to make it very simple for them." Machase has been available in France since December, selling 3,500 copies to a base of 14,000 installed Macintoshes.

Industry observers are less sanguine about the prospects for Ensemble, noting that it is graphically attractive but limited as a productivity tool. Hayden turned to Contrôle X, observers say, when it either failed to get Mouseworks or was outbid. The asking price for Mouseworks was reportedly a stiff \$2 million up front, a heady price based on the remarkable sales of Appleworks.

Appleworks has truly been the unking success story of software, surprising everyone by upsetting Lotus' 1-2-3 as the best-selling software program. Written by

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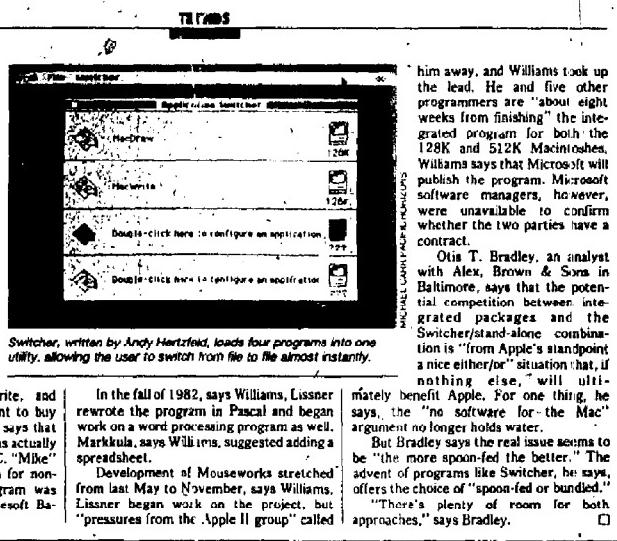
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Rupert Lissner for Apple. It began the year by selling 40,000 copies a month at Apple dealers, according to a survey conducted by Infocorp. (See *InfoWorld*, February 25, 1985.) Other estimates put sales at 20,000 to 30,000 a month.

Lissner and fellow Apple alumnus Don Williams jointly created Mouseworks for the Macintosh in the tradition of the speedy, compact Appleworks. Williams says the package will sell for about \$300 and will be in the same target market as Switcher, primarily "people who don't want to spend any money on software" after they have bought the initial bundle of hardware and software.

"You get Macpaint, Macwrite, and Switcher in a box, and don't want to buy anything else," says Williams. He says that the predecessor to Appleworks was actually written by former Apple CEO A. C. "Mike" Markkula as a "database written for non-computer people." But the program was written in "spaghetti code, Applesoft BASIC," Williams says.



Switcher, written by Andy Hertzfeld, loads four programs into one utility, allowing the user to switch from file to file almost instantly.

In the fall of 1982, says Williams, Lissner rewrote the program in Pascal and began work on a word processing program as well. Markkula, says Williams, suggested adding a spreadsheet.

Development of Mouseworks stretched from last May to November, says Williams. Lissner began work on the project, but "pressures from the Apple II group" called

him away, and Williams took up the lead. He and five other programmers are "about eight weeks from finishing" the integrated program for both the 128K and 512K Macintoshes. Williams says that Microsoft will publish the program. Microsoft software managers, however, were unavailable to confirm whether the two parties have a contract.

Otis T. Bradley, an analyst with Alex, Brown & Sons in Baltimore, says that the potential competition between integrated packages and the Switcher/stand-alone combination is "from Apple's standpoint a nice either/or" situation that, if nothing else, "will ultimately benefit Apple. For one thing, he says, the 'no software for the Mac' argument no longer holds water.

But Bradley says the real issue seems to be "the more spoon-fed the better." The advent of programs like Switcher, he says, offers the choice of "spoon-fed or bundled." "There's plenty of room for both approaches," says Bradley.

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